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# Were Neanderthals Rational? A Stoic Approach

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**Abstract:** This paper adopts the philosophical approach of Stoicism as the basis for re-examining the cognitive and ethical relationship between *Homo sapiens* and Neanderthals. Stoicism sets out a clear criterion for the special moral status of human beings, namely rationality. We explore to what extent Neanderthals were sufficiently rational to be considered “human”. Recent findings in the fields of palaeoanthropology and palaeogenetics show that Neanderthals possessed high-level cognitive abilities and produced viable offspring with anatomically modern humans. Our discussion offers insights for reflecting on the relationship between humans and other forms of natural life and any moral obligations that result.

**Keywords:** circles of concern; eudaimonia; human evolution; speciesism; stoicism and science

## 1. Introduction

The ancient Greek philosophy of Stoicism (current from the third century BCE to the second century CE) was, arguably, the first Western philosophy that presented all humanity as unified by shared possession of a natural characteristic, namely rationality (Turner 2017). All human beings, as rational agents, have the potential to flourish<sup>1</sup> (attain eudaimonia). They do this through virtue, with their virtue alone being the defining factor. The Stoic position is that a slave is no less human than a freeperson, a woman is not inferior to a man, and that there are no intrinsic differences in the humanity of members born to different tribes, nations or tongues, those that have received education and those that have not. In principle, ‘all human beings have the starting-points of virtue’ (Long and Sedley 1987, 61L) and thus also happiness (eudaimonia), since happiness depends on virtue.

Aristotle, likewise, saw virtue as a central part of the basis (though not the whole basis) for human flourishing. He conceived happiness as the best possible human life (*Nicomachean Ethics* 1.7, 1.10), but thought there were a number of pre-requisites to developing virtue and obtaining eudaimonic wellbeing. To experience the latter, he believed people had to have the right kind of inborn nature, social background (one in which they would learn the basics of virtue), and advanced education (*Nicomachean Ethics* 10.9, Burnyeat 1980). Consequently, as access to such experiences was (and still is)

<sup>1</sup> The only case where this does not apply is where a severe mental or physical condition prevents normal adult neurological functioning and would act as an insurmountable barrier to someone’s ability to flourish and thus enjoy the fullness of the human experience.

far from universal, he argued that not all individuals had, nor could ever hope to have, the capacity to act rationally and consistently. In fact, he reasoned that certain pursuits such as manual labour diminished one's ability to exercise virtue and achieve eudaimonia (Nussbaum 2001). In effect, this ruled out the pursuit of happiness for all but the elite of his day.

By contrast, the Stoics thought that all human beings, who have, constitutively, the capacity for reasoning and can express this in the form of language and complex communication, have, in principle, the ability to attain eudaimonia. Those that do so are said to have achieved sagehood, a condition defined by living consistently according to the four cardinal virtues of courage, justice, prudence and self-control, as far as is humanly possible. Sagehood is an ideal state and rarely reached in full; however, Stoics insist that all adult human beings have the natural capacity to make progress towards it. Consequently, the only "us" and "them" divide in Stoicism is that of the sage and the non-sage, with most of humanity, if not almost all, falling into the second category. In this respect, Aristotelian ethics and Stoicism converge on the idea that, as Fowers (2012, p. 14) puts it:

*Eudaimonia is not a momentary accomplishment; it is a lifelong pattern of activity . . . There are no short-cuts or strategies; one can only attain eudaimonia through the full expression of one's human capacities.*

It is worth stating that, although Stoics do not draw a sharp distinction between those human beings who can potentially flourish and who cannot, we should not assume that a Stoic is expected, or required, to treat everyone in the same way. In fact, ancient Stoics such as Hierocles and Cicero (in *On Duties* 1.50–3) used the image of 'circles' of concern to express the idea that humans naturally feel a more direct or pressing connection with some people (such as family and friends) than they do with others. That said, an important feature of Stoic philosophy is the conviction that all human beings belong and participate in a cosmopolitan society of a shared universal citizenship. Hierocles, in particular, stressed the idea that one should aim to draw the circles of concern inward, thus bringing the whole of humanity closer to the centre of one's first level of concern—that of the self (Long and Sedley 1987, 57G).

Although the Stoics saw all human beings as unified by the possession of reason and as forming a kind of world-community of rational agents, they also drew a sharp distinction between human beings and other animals in this respect. What, exactly, distinguishes human beings (*Homo sapiens*) from other living creatures? For the ancient Stoic, it was the *logos* i.e., reason or rationality. The capacity for reason was considered the possession of all adult human beings and thought to be the characteristic which humans uniquely shared with the divinity in-built into the universe. It was this god-like nature that made human beings special and separated them and their concerns from those of other animals.

However, the presumption that we are the "special" ones, and that we represent the highest form of life in the *scala naturae* ("natural ladder"), has been challenged by the scientific community for the last 150 years, starting with Darwin and Wallace (e.g., Darwin 1859; Wallace 1889). Leaving theology aside, present-day scientific techniques and field discoveries have blurred the distinction between what has traditionally been referred to as human (*Homo sapiens*) and the rest of the Earth's species (Rosas 2016; Rutherford 2017; Zilhão 2015). In fact, the distinction between *Homo sapiens* and all other species, not just humankind's closest cousins, is increasingly being criticized as ignorance or bias at best (Papagianni and Morse 2015; Soressi 2016) and speciesism at worst (Dawkins 2015, 2017a; Johnson 2014).

We have taken the Stoic approach as our starting-point here because we think their world-view offers a framework with a scope and vision that has much to offer, including their cosmopolitanism, that is, their readiness to see all human beings as united by a shared rationality. It also extends to their willingness to recognise rationality as embodied in other forms of natural life, namely the universe as a whole. The ancient Stoics challenged some of the prevailing prejudices of their day, based in part on the "physics" (knowledge of nature) then available to them. Might one suggest that those espousing Stoicism in the 21st century have the same obligation to break down, in light of scientific principles and

enquiry, those prejudices that remain? In this respect, we build on the proposal of [Whiting et al. \(2018\)](#) to add a circle of concern outside that which is conventionally “human” and which has until now formed the limit of the Stoic view. We do this by examining the basis of ancient Stoic thinking on the relationship between human beings and other living creatures. We then juxtapose this to current scientific evidence in human evolution, focusing on Neanderthals. Consequently, we explore the extent of which Stoic philosophy is anthropocentric, and whether a modern Stoic can maintain the view that human beings deserve a special status.

## 2. Stoicism: Humanity and Rationality

In Stoic theology the universe is seen as a coherent whole, in which Nature exercises providential care for all its elements e.g., the sea, air, plants and animals, including humans (Cicero, *On the Nature of the Gods* 2.83, 100–1, 122–30, [Long and Sedley 1987](#), 54J). However, there was a clear dividing line between (adult) humans, who possessed the capacity for rationality, and other animals which did not. Rationality (Greek *logos*, Latin *ratio*) is understood as being able to use language and other forms of communication, as well as logical reasoning and inference (See [Inwood 1985](#), pp. 66–91; [Gill 1991](#), pp. 184–93). For Seneca, as stated in his essay *On Benefits* (4.18.1), it is sociability that “grants mankind dominion over all other creatures”. In *On Ends* (3.67), Cicero presents the Stoic view that the shared possession of reason means that there is a kind of fellowship between all human beings, and that this fellowship does not extend to relations between human beings and animals. As he discusses in Book 1 of *On Duties*, it is this reason, expressed in the form of language, that provides a “natural fellowship” between all humanity, and which equally separates all of humankind from the “nature of beasts”. For Cicero, it is also reason which is required for the development of each of the four cardinal virtues (*On Duties* 1.11–14). Cicero goes on to argue that animals cannot understand or lay claim to the virtue of justice, precisely because they have neither reason nor language.

Under a Stoic framework, language is required for justice to function. Justice and the other virtues require certain psychological capacities (informed by reason) which animals do not have. Likewise, the social nature attributable to certain animal communities does not reach the human level of social interaction, which requires complex communication structures. This picture of the natural world precludes animals from being recipients or being held morally responsible for matters concerning justice. Consequently, given that eudaimonia depends on virtue, eudaimonia can only be obtained by a human being.

Ancient Stoics, despite having drawn a distinction between humans and animals, recognised that human beings, as animals, shared certain fundamental motives or instincts with other species of the animal kingdom, namely the motive to preserve oneself and to care for oneself, to procreate and care for one’s young and others of one’s kind. This view is fundamental for their distinctive theory of ethical development as a form of ‘appropriation’ (*oikeiosis*) ([Long and Sedley 1987](#), 57, esp. A, F(1)). They also recognised that animals were capable of collective and mutually beneficial activities both within species (such as bees), and in some cases across species (Cicero, *On Ends* 3.63, [Long and Sedley 1987](#), 57 F(2)). Also—rather problematically for their view—they acknowledged that some animals may exhibit behaviour which seems to imply rational activity. One striking example is the so-called ‘dialectical dog’, which, having smelt without success for the scent of his prey on two of three roads, runs off without smelling along the third, since he (apparently) infers that the prey must have gone this way ([Long and Sedley 1987](#), 36E; [Inwood 1985](#), p. 80).

Despite the aforementioned suggestive features of their thought, ancient Stoics still adopted the overall view that (adult) human beings, alone among animals, were rational, and that this made a profound difference to their mode of activity and their collective life. They maintained, for instance, that the emergence of rationality in the course of an individual’s development is that which transforms the basic animal instincts for care of oneself, and for others of one’s kind, into that which provides the basis for the virtues (and thus happiness). It is also integral to recognising all human beings, in some sense, as our kin or fellow-citizens ([Long and Sedley 1987](#), 57 A. F and 59D).

The distinction between the rational man, or woman, and non-rational animals and plants was regarded as having profound moral implications. Hence, we are told that Chrysippus, the major Stoic theorist, maintained ‘that all other things [in the universe] were created for the sake of human beings and gods, but that these exist for their own mutual fellowship and society, so that human beings can make use of beasts for their own purposes without injuring (or doing wrong) to them (*sine iniuria*)’ (Cicero, *On Ends* 3.67, (Long and Sedley 1987, 57 F(5))). For similar reasons, Chrysippus claimed that life had been given to the pig as a form of salt to keep it from going rotten and to preserve it for human use (Long and Sedley 1987, 54 P; Cicero, *On the Nature of the Gods* 2. 154–62, esp. 160; Sedley 2009, pp. 231–38). Hence, despite having what is, in some ways, a highly sophisticated view about the relationship between human beings and other animals, the ancient Stoics attached great importance to the difference made by rationality and the moral significance of this difference.

### 3. Science: Re-Defining Humanity

In the 21st century most people, even in academic circles, still wrongly assert that we evolved from, rather than alongside, Neanderthals. Like non-Westernised communities, Neanderthals have been subject to labelling and a whole host of false impressions simply for looking different (Devlin 2018). They are often ridiculed as stupid brutes because of their facial features and for not having survived the evolutionary process. Yet, Nielsen et al. (2017) raise the possibility that Neanderthal extinction is due to interbreeding and absorption into *Homo sapiens* groups, rather than an inability to out compete them or to adapt to climate change. The absurdity of the idea that Neanderthals died out as a result of limited intelligence becomes clear if one is able to envision a world where global warming has wiped out *Homo sapiens* but not the cockroach.

There are historic reasons behind the previous prejudicial assumptions. At the dawn of written communication (3400–3100 BCE), there was only one living human species on Earth. No fossil record demonstrated the existence of ancestral lineages that could be traced back 9 million years ago to the chimpanzee. Any discoveries of fossils were most likely misunderstood, perhaps revered or shunned by primitive societies. Consequently, for the most part, the *Homo sapiens* origins story has been subject to mythological and religious speculation with each tribe coming up with their own ideas. A great change of thinking on how humans and all other species appeared was brought about by Darwinism (Darwin 1859, 1871). Apart from challenging the position of religion, Darwin’s Theory of Evolution provided philosophy with evidence-based arguments as to what constitutes the definition of “human” or “humanity”. His theory continues to support scientists in gaining a better understanding of *Homo sapiens*, now understood to be the only surviving member of the many species that fall under the genus *Homo* (Hawks 2017; Rosas 2016).

#### 3.1. The Physical Development of Intelligence

In palaeoanthropology, the exact definition of *Homo* has changed over time, in line with the accumulation and reinterpretation of evidence (Wood and Collard 2001). Wood and Collard (1999) suggested that for a fossil to be grouped with *Homo* it needed to look more human than ape (*Australopithecus*), as regards body shape and mass proportions, teeth, jaws and locomotive ability. It also required a modern human-like developmental period with respect to infant and juvenile growth into adulthood (Antón et al. 2014). Encephalisation, the proportion of mass dedicated to the brain relative to the body (often measured by the encephalisation quotient—EQ), is also a key consideration, as it is a proxy for intelligence.

There is increasing evidence that larger brains are linked with socialisation, greater cooperative care and more complex kinship ties (Smith et al. 2012). The EQ of *Homo Sapiens* is 6.56, which puts us at the top of the list (Cairó 2011). The Neanderthal’s (*Homo neanderthalensis*) meanwhile is 4.8 (Ruff et al. 1997). For comparison purposes the whale dolphin’s and bottlenose dolphin’s EQ are at 5.55 and 5.26 respectively. The chimpanzee, our closest living relative, has a much lower value at 2.63

(Cairó 2011). However, some in the field have argued that for primates overall brain size and not the EQ is a better predictor of cognitive ability (Deaner et al. 2007).

When one looks at brain size and development across the evolutionary transitions from *Homo erectus* to modern *Homo sapiens*, Neanderthals had larger average cranial capacity than modern humans, due to the neural developmental and neural organisational differences that existed between the two groups (Pearce et al. 2013).

It is currently unclear whether or not Neanderthals had more or less potential for intelligence than *Homo sapiens*. In fact, Rosas et al. (2017) show that a Neanderthal juvenile's brain growth, had he not died, would probably have continued beyond the 7.7 years of age expected in modern humans. Slow maturation is associated with a large brain and higher cognitive abilities, which occurs in *Homo sapiens* and is thus indicative of a comparable level of intelligence between the two species (Lieberman 2011). Likewise, Neanderthals have a large endocranial volume (ECV). The average is approximately 1500 cm<sup>3</sup>, which puts Neanderthals at the upper end of the range for anatomically modern humans (Holloway et al. 2009, 2003). In fact, the largest Neanderthal brain size ever found is bigger than many of the brains possessed by humans walking around in the 21st century (Papagianni and Morse 2015). This challenges any notion that Neanderthals died out because of a lack of intelligence.

From a Stoic point of view, anatomical structure would not have been enough, by itself, to classify other species as rational. They would also have required evidence of capacity for the activities they saw as distinctively rational. That said, the existence of human species similar to modern day humans, had ancient Stoics known about them, might have caused at least some philosophers to re-consider the idea that the only rational mortal beings ever to have existed were *Homo sapiens*.

### 3.2. Cognitive Ability, Language and Social Development

Apart from the physical markers of brain size and development, there are also key skills and abilities that have been used historically to distinguish humans from the rest of the animal kingdom. Of all of them, the ability to speak and construct language is perhaps the most significant and is widely seen as a quintessentially human trait.

Whilst neither archaeology nor the fossil record reveals Neanderthal cognitive functions, some research lends support to the idea that Neanderthals were capable of speech. In fact, there is a growing consensus that challenges the notion that *Homo sapiens* were unique in their speech capabilities. The traditional view is still held by Noam Chomsky, who argues that there is not enough *positive* evidence to suggest otherwise (Berwick and Chomsky 2015, 2017). Some other prominent academics, such as paleoanthropologist Richard Klein, have modified their position on this question in the light of field discoveries and genetic evidence. Klein (2003) originally stated that Neanderthals were markedly inferior in the cognitive sense. However, in (Klein 2017), he argued in favour of their language abilities because of their brain size, EQ and cortical configuration. Even so, he also suggested that their vowel production might be more limited and that their linguistic skills, although similar, were likely to be slightly inferior to those possessed by modern humans.

Additional anatomical evidence for Neanderthal speech relates to the position and dimension of their larynx and hyoid apparatus, which would *not* have rendered them incapable of verbal communication (Boë et al. 2002). The size of the thoracic part of the vertebral canal is also suitable (Meyer and Haeusler 2015). This is an important factor to consider because it is one of the mechanisms that support the uniquely human ability to produce various sounds in a single breath (MacLarnon and Hewitt 2004).

Speech capabilities are also evidenced on a genetic level, with both the *Homo sapiens* and Neanderthal genome containing the FOXP2 gene (Krause et al. 2007). Individuals with faulty genes of this type are known to experience speech impairment, so its existence appears to be crucial to spoken language development (Rosas 2016). Furthermore, Mozzi et al. (2016) suggested that Neanderthals do not differ from anatomically modern humans when it comes to other genes associated with language,

although more research has to be done before proper conclusions can be drawn. It is important to note that there is a conceptual leap between not being hindered from forming limited phrasal expressions and the ability to engage in complex linguistic communication. This needs to be considered when assessing the societal intelligence of Neanderthals (Murphy and Benitez-Burraco 2017).

For communication ability, one must not only consider the vocalisation potential but also the ability to hear. Neanderthals seem to have been sensitive to wave (sound) frequencies of up to 5 Hz, which is relevant for language capacity (Martínez et al. 2004). The ear bones of the two species are morphologically similar and the physical variations that are present are not thought to constitute a major difference between modern human and Neanderthal auditory sensitivity (Stoessel et al. 2016).

An important indication of social ability is not just overall brain size but the proportion of the brain linked to cognitive tasks. Most of the Neanderthal larger brain size is linked to the visual cortex and somatic functions. Given that *Homo sapiens* and Neanderthal brain size is similar, those areas dedicated to cognitive processes in Neanderthals appears comparatively reduced (Pearce et al. 2013). The existing, albeit scant, archaeological evidence available currently supports the hypothesis that Neanderthals had weaker social skills and a lower (although certainly not limited) potential for supporting sizeable social networks of care and community (Mellars and French 2011).

However, there is by no means a consensus on this matter, as there are a number of nuances. For instance, Collard et al. (2016) argue that the hypothesis that population size governs cultural complexity is not supported by ethnographic or archaeological findings. Collard et al. (2005, 2013, 2016) put forward the idea that risk proxies such as above-ground productivity and mean temperature are better predictors. Others such as Fogarty et al. (2017) have likewise modelled for cultural accumulation and technological innovation but have demonstrated that these are dependent on multiple factors, including those relating to the environment, cognitive ability and demographic differences.

There are field discoveries that challenge the prevailing view that Neanderthal social organisation is inferior to that of *Homo sapiens*. One such example is the discovery of a Neanderthal-made karst construction of *hundreds of partially calibrated, broken stalagmites (speleofacts) that appear to have been deliberately moved and placed in their current locations, along with the presence of several intentionally heated zones* (Jaubert et al. 2016). There have also been various archaeological findings indicative of the Neanderthal capacity to understand symbolism, including the burial of their dead and the production of ornamental paints and artefacts (Roebroeks et al. 2012; Zilhão 2015; Zilhão et al. 2010). The oldest known cave art was produced by Neanderthals living in present day Spain (Hoffmann et al. 2018; Marris 2018). There is also sufficient evidence to show that both anatomically modern humans and Neanderthals, living during the same time-period, could create specialised tools of equal standard (Soressi et al. 2013).

It is well known that Neanderthals mastered fire, as demonstrated by their regular use of it for cooking, the specific selection and collection of organic material for fire making (Esteban et al. 2017) and fire-enabled glue production (pitch) for toolmaking. The latter requires a considerable degree of cognitive ability, technical skill and memory retention (Villa and Roebroeks 2014). Tellingly, it is a technique that has for a long time eluded the skills of modern archaeologists, although Kozowyk et al. (2017) have put forward an experimentally based methodology.

Given the fossil record, we know that Neanderthal individuals survived severe injuries, illnesses and debilitating conditions. Such evidence is highly suggestive of a cognitive ability to empathise with, and take care of, members that cannot look after themselves. This behaviour does not provide what some argue is a conventional type of Darwinian advantage to the group (Cunha 2016; Spikins et al. 2018). One challenge to the level of symbolic thought and emphatic reasoning held by Neanderthals, relates to phenomenological considerations, including phenomenal consciousness. In other words, whilst Neanderthals did have the cognitive abilities to create art or produce certain symbolic forms, we should not automatically assume that they enjoyed their presence in the world as much as *Homo sapiens* or had the same sense of wonder. In this sense, while Neanderthals may have had experiences that *resemble* our feelings of empathy and aesthetic value, they could well

have been less sophisticated (Montemayor and Horne 2017). If this is true, then one must be careful when evaluating Neanderthal behaviour and ascribing it to our standard. However, others such as (Lent 2017), view the burial of the dead by both *Homo* groups as a collective sign of the “tragedy of cognition” and “metaphysical anguish”. In his worldview, these cognitive impressions are a strong indicator of one’s humanity. Regardless of the exact nature of the Neanderthal experience, all of the aforementioned activities require a reasonable level of communication, although perhaps not complex language construction (Murphy and Benitez-Burraco 2017). Many of the latest discoveries are well summarised by Patou-Mathis (2018). The weight of all such evidence has clear implications for the Stoic determination of what is “human”, since this classification, for the neurotypical members of a species, is dependent on the ability to express oneself rationally either verbally or in symbolic form.

Another interesting concept from a Stoic perspective, and one which adds another level of analysis to the debate about the humanity of Neanderthals, is that of cumulative culture evolution. The latter refers to performance improvements over the long term, as shown by the societal acquisition of new or modified skills that demonstrate a level of increasing efficiency or complexity over successive generations. The process just described is experienced on an intuitive level. We take advantage of the present technologies, scientific knowledge and philosophical ideas that were only made possible *by our ability to understand and make use of the imparted knowledge and artefacts of others* (Caldwell and Millen 2008). This idea is reflected in Isaac Newton’s famous words *if I have seen further it is only by standing on the shoulders of giants* (Newton 1676). It can be explained by the educational capacities of human beings. Non-rational animals, on the other hand, while able to learn something, struggle to teach anything beyond, perhaps, the most basic of skills (Davidson 2016). So, whilst they might have something akin to culture, they do not seem to possess anything close enough to the uniquely human organisational structure or any mechanism supportive of cumulative culture (Feldblum et al. 2018; Tennie et al. 2009). Therefore, the latter is a unique human ability (Osiurak et al. 2016). It presents a clear boundary that can be drawn between humans and non-humans. It would also be, by way of extension, a key factor in determining whether Neanderthals or other archaic members of the *Homo* genus could truly be considered human.

Ref. Hill et al. (2011) explore the many variables that need to be in place for cumulative cultural evolution to occur. First and foremost, the species, or the community, must be naturally cooperative, meaning social. The neurotypical members must also possess social cognition, regard sharing as important and have a proclivity for teaching and learning. They should also show a desire to promote equitable ideals and a willingness to punish those who break established norms, even when not directly affected by the antisocial behaviour. Kinship ties are also identified as an important mechanism for the proliferation of innovative ideas and practices of ever increasing complexity and efficiency. All of these elements mirror the natural capacity for reason and rationality, observed by the ancient Stoics who, as we have explained in the previous sections, saw human beings as naturally social with an in-built affinity for members of their own kind.

It is difficult to say for certain whether Neanderthal communities experienced cumulative cultural evolution and, if they did, at what speed and under which conditions. Hill et al. (2009) propose, cautiously that the level of skill required for Neanderthal tool making is indicative of their possession of cumulative culture. The speed at which this occurred might have been slower, given the smaller population numbers (Cieri et al. 2014). Therefore, while we cannot demonstrate the level of cumulative culture to be the same as that experienced by the *Homo sapiens* communities operating during the same period, we are confident that it existed to a sufficient degree to warrant the Neanderthals classification as “human”.

### 3.3. Interbreeding between Neanderthals and *Homo Sapiens*

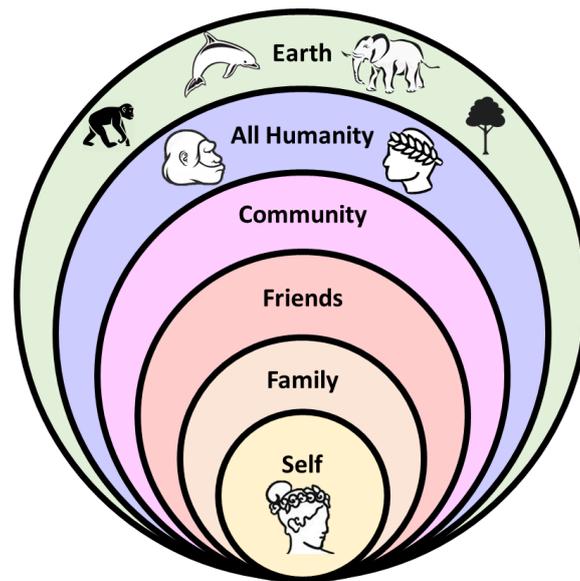
Recent developments in palaeogenetics have demonstrated that far from Neanderthals being an ancestral species, they were very much our contemporaries (Pääbo 2014). In fact, we can state, beyond doubt, that both species combined, and produced fertile female offspring that went

on to form the modern humans of non-African origin (Sankararaman et al. 2014). There are, for example, various hybrid fossils that display traits from both Neanderthal and *Homo sapiens* phenotypes (Duarte et al. 1999; Fu et al. 2015). Further, the proportion of Neanderthal-derived DNA in non-Africans, at 1.5–2.1 percent of the present genome, continues to shape human evolution today (Nielsen et al. 2017; Prüfer et al. 2014). Another *Homo* species (Denisovans), that both *Homo sapiens* and Neanderthals interbred with, also continues to play a role in the evolution of the human species originating from the Australasian continent and New Guinea (Reich 2018; Stringer 2012). This has led to the quip that, far from experiencing the dominance of one human species over the rest, our earliest ancestors lived in a “Lord of the Rings” type world (Thomas cited by Callaway 2013).

The discovery that only nuclear DNA and not mitochondrial DNA (which is passed on exclusively via the maternal line) holds commonalities between Neanderthals and *Homo sapiens* means that successful interbreeding only occurred between male Neanderthals and female *Homo sapiens*, with male offspring rendered infertile (Mason and Short 2011; Wang et al. 2013). This could be used to support a non-consensual sex hypothesis (especially given the robustness of the Neanderthal physique). An identical claim can of course be made that a male *Homo sapiens* could have forced himself upon a female Neanderthal, but this cannot be proven genetically. Similarly, one would not be able to demonstrate instances of homosexual encounters, consensual or otherwise. In any case, it seems quite unreasonable to assume that all sexual encounters between the different *Homo* species were of the non-consensual variety. It is much more likely that at least some of the instances of interbreeding between co-existing *Homo* species, including anatomically modern humans, were the result of communication and a degree of affection or appreciation. Regardless of the exact dynamics of sexual relations, we know for certain that some resulted in offspring that could claim kinship to more than one set of human species. In light of this fact, it seems that the ancient Stoics, had they known about such events, might have extended the term “human” as an umbrella classification to all such groups, not just *Homo sapiens*.

#### 4. Discussion

If we acknowledge the Stoic principle that ethics should take account of “physics”, we must be committed to drawing out the implications of relevant scientific facts for our ethics. It follows that modern Stoics should incorporate up-to-date evidence on the natural world into modern versions of their philosophy. This means that the theories (as opposed to hypotheses which have less evidence and thus academic support) of modern science must be integrated into all aspects of its framework. Thus, whilst it makes sense to refer to the writings of the ancient Stoics, as the authors have done in Section 2, to provide the basis of a modern version of Stoicism, it is neither wise nor sufficient to adhere literally to all their views, especially when their opinions are divergent from modern scientific evidence or inadequate for its proper interpretation. While the scientific findings presented in Section 3 do not contradict ancient Stoic ideas, and actually coincide with some held by Cleanthes following his observations of ants (as recorded in *De Natura Animalium* by Aelian in Book 6, section 50), they do provide reasons for extending their circles of concern, rather than stopping at what (or who) has been traditionally thought of as human (Figure 1). Similarly, it is clear that if the ancient Stoics had known about other *Homo* species, they might have recognised the humanity of at least some of them. We believe they would have done so on account of their anatomically similar structure, ability to communicate through art and the spoken word, create complex tools, experience a degree of cumulative cultural evolution and, perhaps most importantly, upon the evidence that they managed to procreate with us.



**Figure 1.** A 21st century adaption of Hierocles' model of concern. It is worth stating that the “self” need not be of the *Homo sapiens* species and could as easily be a Neanderthal or other *Homo* species. One can also argue that animals, such as wolves also have a sense of self, a family (pack) and a sense of the surrounding wildlife. The circles might differ but the concept equally applies.

#### *Stoicism: Grounds for Speciesism?*

As a thought experiment, it is worth considering whether the anthropocentric vision of the world that promotes socio-economic development (solely a *Homo sapiens* pursuit) at the expense of non-human concerns, including biodiversity, environmental pollution and climate change, could be maintained if all, or at least some, of the evolutionary links between us and chimpanzees had not died out. Dawkins (2017a, p. 99) uses this evolutionary consideration to argue against the ‘*automatic assumption that humans deserve special treatment over and above all other animals simply because we are human*’ and also argues for ‘*the non-uniqueness of the human species in the continuity of animals*’. Given this consideration, he questions whether our treatment of animals, including those we eat, is morally justified. He also challenges the double standard involved in giving an early-stage human embryo more moral consideration than an adult farm animal or chimpanzee, which has a fully developed nervous system and an awareness of physical pain and suffering (Dawkins 2017b).

Despite claims to the contrary (e.g., Sorabji 1995), one can argue that the Stoic value-system is not, essentially, based on anthropocentrism or speciesism. In Stoic ethics, value is attached to rationality, rather than humanity as such; humans are seen as having a special place among animals because adult humans are uniquely rational. It is worth noting that, according to the principles of Stoic theology, the natural universe or cosmos, taken as a whole, is rational and is a more complete expression of rationality than that which could ever be possessed by human beings, including the sages. For the Stoics, the universe is seen as rational because it is characterised by order, structure and wholeness (Cicero, *On the Nature of the Gods* 2.15–16, 18–19, 22, 32–34, 35–39, 43, Long and Sedley 1987, 54 A–B, F–H; see also Gill 2006, pp. 30–35, 140–44, 150–52). So, although the Stoics distinguish human beings from other animals, they do not see rationality as a purely species-specific characteristic.

The question of the extent to which different types of animals, for instance elephants, dogs or ants, can be seen as rational, by modern criteria, is beyond the scope of this paper; but it is something that does require further investigation, as fresh scientific evidence appears. The authors of this paper suggest that, if the ancient Stoics had formed a view of the psychological capacities of animals closer to modern accounts, they would not have drawn such a sharp distinction between humans and animals in this respect. They would also have modified their view that the relationship between humans and

animals allows for considerations of justice and that we are entitled to use animals for purely human purposes. Their recognition of the rationality built into the natural universe shows that they had the basis for the modification of their view. Also, as noted earlier (Section 1), the key moral distinction in Stoicism is not between humans and animals but between sages and non-sages.

By the same line of reasoning, if Neanderthals were rational beings capable of complex thought-processes, then they too, were they alive today, could count as human beings and entities of moral concern for us. In Stoic terms, they could have (or could have had) their own sages, or at least their own ideal of sagehood, as the highest expression of virtue and eudaimonia. This thought may be uncomfortable, even to some modern Stoics, but if the sage ideal constitutes more than simply an abstract thought experiment, there could have been sages among the Neanderthals as well as among us (members of *Homo sapiens*); it is simply a question of probability. Even if the sage is only a thought experiment (an ideal which can never actually be realised), the question is whether the principles could extend to Neanderthals or not. The answer has implications for the continued justification of speciesism. One can of course raise the question as to whether or not it is reasonable to believe that Neanderthals *ought* to have behaved in similar ways to modern humans or *ought* to have behaved differently. After all, might our analysis reflect a bias or result in an unjustified projection of human characteristics? Indeed, we are, to some extent, attributing our values and norms to Neanderthals when interpreting their behaviour (Spikins et al. 2018). Linked to this concern is Zilhão's (2013) argument that differences do not necessarily mean inferiority or superiority and should not be labelled as such.

Should we not instead simply appreciate and celebrate their humanity rather than imposing on them our own? It is not easy to answer such speculative questions, given that, as humans, we are forced to consider the world through an anthropocentric (meaning *Homo sapiens*) lens.

That said, the recognition of the humanity and the rightful position of Neanderthals in the story of human development go some way towards shattering the hard line between *Homo sapiens* and everything else. This is especially true once it is understood that *Homo sapiens* does not represent the pinnacle of evolution, but rather a branch of the many evolutionary routes that have flourished or died out during the course of the Earth's existence. Finally, whilst one may consider that Neanderthals have no direct bearing on our reality, this could change in the event of cloning or incorporating extensive tracts of extinct DNA into present day populations (Church and Regis 2014). Parallels can also be drawn, in the futurist sense, to the ethics and morality of artificial intelligence, especially if humankind is intent on creating a non-biological rational being.

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